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Atty. Dkt. No. 052218-0104

Claim Amendments

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-2. (Cancelled).

3. (Previously Presented) The apparatus according to claim 4, wherein a diameter of the nozzle exceeds the diameter of the exit by more than approximately 1.5 mm.

4. (Currently Amended) An underwater laser processing apparatus, comprising:
an optical unit that irradiates a condensed laser beam generated by a laser source and guided by an optical fiber to a certain point of an underwater workpiece;
a nozzle having a gas exit for supplying gas to the certain point; and
a bush that prevents a reflected laser beam from entering the laser source,
wherein the nozzle comprises an area surrounding the gas exit extending to the surface of the workpiece for keeping the supplied gas between the nozzle and the workpiece,
wherein the nozzle is formed as a disk having a flat surface area facing and extending along the workpiece and having the gas exit at the center thereof,
wherein the nozzle has a circular groove extending in a circumferential direction on the flat surface area facing the workpiece, the groove being in the flat surface area and having a trench shape extending into the flat surface area, and
wherein the optical unit comprises a collimator lens that makes parallel the laser beam from the laser source, and a condenser lens that condenses the parallel laser beam.

5. (Previously Presented) The apparatus according to claim 4, further comprising a welding wire exit that supplies a welding wire to the certain point.

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6. (Original) The apparatus according to claim 5, wherein the welding wire exit is a wire tip disposed in the nozzle.

7. (Previously Presented) The apparatus according to claim 4, wherein the optical unit irradiates the laser beam at an angle to the workpiece.

8 - 9. (Cancelled).

10. (Previously Presented) The apparatus according to claim 4, further comprising a dichroic mirror that separates visible light from the laser beam and inputs the separated visible light to an image sensor.

11. (Previously Presented) The apparatus according to claim 4, further comprising an adjuster that adjusts a gap between the nozzle and the workpiece.

12. (Previously Presented) The apparatus according to claim 11, wherein the adjuster comprises a roller that rolls on the workpiece.

13. (Cancelled).

14. (Previously Presented) The apparatus according to claim 4, wherein the groove has a cross section which is one of rectangular, triangular or semicircular.